

BUREAU OF EDUCATION

Pamphlet No. 44

Report of the Committee of the Central Advisory Board of Education on Air Training in relation to the educational system, together with the decisions of the Board thereon.



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REPORT OF THE COMMITTEE ON AIR TRAINING IN RELATION TO THE EDUCATIONAL SYSTEM HELD AT NEW DELHI ON NOVEMBER, 25TH, 1946.

The Official Subjects Committee on Posts and Aviation which met on April 25th, 1945, accepted a suggestion made on behalf of the Civil Aviation Directorate, that a Standing Committee should be constituted with representatives of the Civil Aviation Directorate, Education authorities and Air Headquarters, India, to co-ordinate aviation education as a part of the educational system of the country. The proposal was submitted to the Central Advisory Board of Education at their last meeting at Mysore. The Board authorised the Chairman to appoint a Committee with representatives of the Civil Aviation Directorate, Education Department and Air Headquarters.

2. The Committee as finally constituted in consultation with Defence and Communications Departments is as follows :—

Civil Aviation Directorate.

Air Commodore E. I. Bussel, C.B.E., Director of Training and Licensing, and

Mr. G. S. Subramaniam, Aerodrome Officer (Headquarters).

Air Headquarters.

Group Captain W. C. Matthews, and

Group Captain A. M. Engineer, D.F.C.

Education Department.

Sir J. C. Ghosh, D.Sc., Director, Indian Institute of Science, Bangalore, (Chairman), and

Dr. S. R. Sen Gupta, B.Sc. (Glas.), Ph.D. (Glas.), A.M.I.E.

3. The Committee met on November 25th, 1946 in New Delhi. All members except G/C. Engineer were present. Flight/Lt. S. P. Mehta (of the Indian Air Training Corps) and Mr. C. K. Chandiramani, Assistant Educational Adviser were present by special invitation.

Dr. Akhtar Husain, Assistant Educational Adviser to the Government of India, was Secretary to the Committee.

4. The Agenda for the meeting was as follows :—

1. To consider the status and scope of the Committee.
 2. To consider the preparation of material for inclusion in secondary school text-books.
 3. To consider the introduction of extra-curriculum instruction on matters of aviation at Universities, chiefly by the use of films and epidioscope lectures.
 4. To consider the introduction of model aircraft-flying clubs in technical schools and colleges.
 5. To consider the formation of Air Scouts.
 6. To consider the organisation of an Aeronautical Society in India.
 7. To consider any other matter that may be raised with the consent of the Chairman.
5. The following papers were circulated :—
- (a) Record of the Second Meeting of Policy Committee No. 3-B on Posts and Aviation, held at New Delhi on 8th January, 1946. (Not printed).
 - (b) Aeronautical Training and Education Brochure published by the Civil Aviation Directorate. (Not printed).
 - (c) Two notes prepared by Sir J. C. Ghosh, (Annexures I and II).

*6. The Committee took into consideration the present activities of the Indian Air Training Corps and the ground which might be covered by the National Cadet Corps organisation. It was noted that it was part and parcel of the programme of the Air Training Corps and the National Cadet Corps to give instruction in general matters relating to aviation. The Training Corps might open their lectures and cinema displays to anyone in a University and not only to Corps members. The Committee was unanimous that any other organisation should take into account the facilities offered by these two organisations, so that there may not be unnecessary over-lapping or duplication of effort. It was however felt, there was room and necessity for an organisation which confined its activities to make students and teachers air-minded and familiar with the basic principles of Aeronautical Sciences. Such an organisation could also usefully look after the purely educational side of Civil Aviation and co-ordinate the work of other organisations which aimed at encouraging students to take up services in the Air Administration of the Defence Services. It was resolved that there should be a Standing Committee comprising two members nominated by each of these three Departments, thus making a total of six, to develop such an organisation.

7. As text-books were prepared by private persons and approved by Text-book Committees of the Provinces, the Committee felt that it would not be practicable to incorporate lessons on Aeronautics in the text-books. It was, however, recommended that each year a number of selected teachers from Secondary Schools and Intermediate Colleges might be given a short course of instruction in Aeronautics and that such courses should be arranged at approved centres, so that these teachers might be able to draw on their knowledge of Aeronautics to illustrate their lessons for instruction in General Science.

The Committee were also of the opinion that Aeronautical Science should be introduced as an optional subject in the science and engineering Courses in Universities.

8. The Committee noted that the Indian Air Training Corps were attending to extra-curricular instruction on matters of Aviation at Universities and resolved that this Committee should have an opportunity of reviewing periodically the work done in this connection. The Committee suggested that it would be useful, as a compliment to this activity, to form Aeronautical Societies in Universities and Colleges. If a College situated within 30 miles of an Aerodrome had one such Society, its members should be given the opportunity of getting air experience in aircrafts provided to by the Air Headquarters and for Civil Aviation Directorate. The need for inviting the attention of the Principals of colleges to the importance of formation of college Aeronautical Society was stressed. The Committee also expressed the opinion that the formation of Glider Clubs attached to educational institutions could be useful for making students air-minded and were glad to learn that the Civil Aviation Directorate was exploring the possibility of promoting a glider club in Bangalore during 1947-48.

9. Air Commodore Bussel informed the Committee that the Civil Aviation Directorate was making financial provisions for the supply of models to schools with a view to popularising the idea of model aircrafts flying clubs. With the aid of such models, students would be able to grasp essential principles of Aeronautical Science. The Committee were informed that models sufficient for establishment such clubs in 100 schools in India would be available shortly. It was suggested that representatives of the

* N. B.:—Two letters received from Capt. Engineer and Capt. Matthews commenting this para are appended to this report.

Civil Aviation Directorate and the Education Department should select 100 schools for starting these clubs, and 100 teachers, one teacher from each of these schools, for 3 months' training in the Indian Institute of Science, Bangalore. The teachers after training would be competent to look after the model flying-clubs established in their respective schools. The Committee were also informed that the Civil Aviation Directorate were making provision for recurring expenditure which should cover the cost of magazines, text-books and replacement of models. The Committee recommended that the cost of training of these school teachers should be borne by the Education Department.

10. Regarding the formation of Air Scouts, the Committee noted that the Indian Air Training Corps were attending to this activity and expressed the hope that from time to time the Committee would be kept informed of the developments in this direction.

11. The Committee considered that in view of the recommendation embodied in paragraph 8 above, it would be advisable for the time being not to start immediately an All-India Aeronautical Society to serve as a Central body to co-ordinate the work of the college Aeronautical Societies. The Committee were informed that the Civil Aviation Directorate was exploring the possibility of forming an Aeronautical Society in Delhi on the lines of the Royal Aeronautical Society of the United Kingdom.

Copy of letter dated the 10th December, 1946, from Group Captain A. M. Engineer, Air Headquarters, New Delhi.

I regret that owing to my unavoidable absence from Delhi I was unable to attend the meeting.

My detailed comments on the draft report are as follows :

- (i) The Government of India, in the Defence Department, have recently decided to set up a National Cadet Corps Organisation which would have as its aims :—
 - (a) The development leadership, character, comradeship and the ideal of Service; and
 - (b) The stimulation of interest in the defence of the country to the widest possible extent.
- A Committee, to be known as the National Cadet Corps Committee, has, therefore, been constituted and has since been functioning under the chairmanship of the Hon'ble Pandit Hirday Nath Kunzru.
- (ii) The Committee, in addition to the official representatives from the Army, Navy and Air Force, Defence and Education Departments of the Government of India, consists of distinguished educationists and representatives from Indian States. The Committee will consider the whole problem and make recommendations for the establishment on a fully national basis of a Cadet Corps Organisation, which will comprise both Schools and Colleges. The Corps will not only serve as a potential feeder organisation to the National War Academy but will also provide as a supplementary reserve in times of national emergency.
- (iii) The proposed Advisory Committee as envisaged in the draft report is being constituted to create air-mindedness and air science in schools and colleges and to co-ordinate it with any Special Air Organisations which the Air Forces and Civil Aviation might foster.

- (iv) It will thus be observed that the terms of reference of both the Committees are not fundamentally different but on the other hand, seem to overlap in some respects which obviously will not produce the desired results. On the other hand advice from two different sources will lead to confusion.
- (v) There are already too many organisations in schools and colleges such as Boy Scouts, St. John Ambulance Association, University Officers' Training Corps, Indian Air Training Corps and Special Air Classes. The proposed inauguration of Glider Clubs, Model Aircraft Clubs, Aeronautical Societies, as separate **entities**, will lead to unnecessary overlappings and duplications, entail lot of confusion and heavy expense to the Government. It is considered that these activities should be introduced and co-ordinated as a part of the 'Air Force Wing' of the National Cadet Corps Organisation. This will simplify administration, ensure efficient training and encourage the idea of unity rather than rivalry between the different organisations.

In view of the circumstances explained above, it is felt that no useful purpose will be served by the constitution of a separate Advisory Committee at this stage.

I, therefore, strongly recommend that Education Department and Director General of Civil Aviation may be requested to forward their tentative proposals on this matter to the National Cadet Corps Committee so **that full consideration** be given by all the members of the Committee.

Copy of letter No. AHQ(O)/08805/11/ED, dated the 11th December, 1946, from Group Captain W. T. MATTHEWS, Air Headquarters, New Delhi.

As I pointed out at the meeting there does seem to be an undesirable overlap with the function of the National Cadet Corps Organisation, inspite of the statement made in para. 6 of the report. Since the Advisory Committee was formed in response to a request made by the Civil Aviation Directorate, long before the National Cadet Corps Organisation was thought of, this overlapping is understandable. I have been G/Capt. Engineer's reply to you which elaborates these points.

As the report states it is premature to form a learned society of the status of an Institution of Aeronautical Engineers or an Aeronautical Society. When however these are formed and firmly established they would take an active interest in training for a professional career. Many members of these institutions would naturally come from the Royal Indian Air Force. It seems to me therefore that what is envisaged at present would be adequately covered by the National Cadet Corps Organisation when it is established.

ANNEXURE I.

A NOTE
ON
A PROPOSED SCHEME OF MAKING INDIAN YOUTH AIR-MINDED
BOARD OF GERMAN MODEL.

To make the Indian youth air-minded, facilities for learning to fly should be given to the students in the Universities and other training institutions. Physically fit young men should be encouraged to take to flying by giving them not only free training in this field but also instituting a scheme of insurance for compensation in case of accidents which are likely to occur. In addition to this, attractions such as preference in employment in the Indian Air Force, attractive uniforms supplied free and some allowance when such students take intensive training in summer or winter camps should be offered to popularise flying.

In the schools a certain amount of interest in aviation should be created in the minds of the young boys. An excellent method for this purpose is to show the boys sound pictures giving the thrills and explaining the mysteries of powered and powerless flight. A number of such pictures are available from film Corporations producing educational films. The equipment for projection of 16 mm. sound pictures is not very expensive to-day and can be had at a cost of Rs. 2,800, such a projector is capable of showing a picture on a screen of 8' x 10' and has a sufficient sound intensity to make an audience of 100 to 150 hear the sound clearly and comfortably.

In the Universities and institutions of higher training the training in flying can be based on the same principles as the training of U.T.C. men. All boys found fit after a rigid physical examination by a board of medical men, should be eligible for the Air Training scheme. The training should be gradual and should be so arranged as not to interfere with their normal work. In working time flying lessons can be given once or twice a week and intensively every day for a month or so in summer vacations camps. The entire training period should be about four years which is the usual time required in Indian Universities, for a bachelor's degree.

In the first two years gliding and soaring flight should be undertaken. This way of flying is found to be less expensive and very instructive to a student who proposes to take up to powered flight later on. In the first instance students go up short periods roughly about half a minute in duration in elementary training gliders and learn to handle the controls without the aid of an instructor. The hazards for such a flight are not very great as these elementary gliders seldom go beyond a few feet in height. The student afterwards is introduced to secondary training glider which is capable of remaining in air for a slightly longer period and it teaches him the simple manoeuvres like turning to the left or to the right. This training is then followed by a glider which can under favourable circumstances have a duration of flight ranging from half an hour to one hour in suitable places and can enable a man to master the complete manipulation of controls and give him a very delicate sense of handling the machine. Gliding is also a very fine sport and those who are found to be gifted can then be encouraged to take to flying in higher performance soaring gliders which can do practically anything if weather conditions are suitable and the pilot has developed a sort of air sense. This sort of advanced soaring flight is however not necessary for the training scheme, but can be instituted as a specialised line for a few gifted persons. The entire period for gliding can be 2 years following the same method of lessons, once or twice a week during working periods and continuously for a month or so during long vacations.

In the last two years of the University life the boys can be then allowed to take to flying in powered airplanes and train them till they can fly solo and

satisfy the normal requirements of a pilots license. This can either be achieved by having a small aerodrome attached to the Universities or in cooperation with the airforces if they happen to have aerodromes in the vicinity. However, it should be borne in mind that the pilot instructors used in this training scheme should be obtained from a class of highly capable and academically trained men so as to create confidence in the minds of the young students. The usual methods followed in the Airforce may appear too rough at this stage and though the training may be of a better type the students may not feel attracted due to the harder conditions generally prevailing in service.

A very interesting scheme was in practice in Germany before the war, where the student of Universities and other Institutions were allowed to form a flying group and these groups were subsidised to a great extent by the state. However, the money spent in such cases was not large as the students were encouraged to build their own gliders and the amount of work (physical and design) was counted as a sort of payment in the period of flying which students had. This served the double purpose of creating a practical training in design and construction of such small glider also of making them more careful in using these machines as they had to repair the planes when they were damaged. It would be possible to institute some such scheme in a couple of places where training in Aeronautical Engineering is given, so that the students have their practical training combined with entertainment and useful lessons in flight with their own machines. In places where students are trained either in Aeronautical engineerings or in ground engineering it should be made obligatory for those students to learn flying to a certain standard unless prevented by physical fitness. For these purposes a small number of airplanes and gliders should be bought initially and the boys then should be encouraged to build their own things as far as possible as the scheme progresses.

The expenditure for such a scheme in the University for a period of four years would cost on the average Rs. 1,550/- per boy. This figure is a very rough estimate and should be taken with a very great caution. For schemes of the second type, meant for institutions where aeronautical training is given would cost roughly about seven to eight hundred rupees per boy per year.

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ANNEXURE II.

NOTE ON AIR TRAINING AND INDIAN UNIVERSITIES.

Students of Indian Universities could develop their interest in flying through activities both within the University itself and outside it.

Within the University they could join a civilian Society or an air branch of the O.T.C. Lectures could be given by Air Force officers and scientists, discussions should be held and social functions arranged. Sound films would provide in attractive addition.

Science and engineering students may be encouraged by introducing elementary aeronautical illustrations and ideas into their usual academic studies. This is possible in engineering, mathematics, and physics. In appointing a new staff in these subjects, a qualification in aeronautics might be recognised by a preference in selection and/or a subsidised increment in salary. Existing staff could be deputed on leave to a course in aeronautics.

Outside the University, facilities could be offered for flights now and then from a near aerodrome and for annual vacation camps for a few consecutive weeks. Members of the O. T. C. would go to Air Force aerodrome and live under service conditions. Civil camps would present more difficulty. Camps should provide education in ground engineering through observation and/or practice, as well as opportunities for passenger flights.

Training to fly is a separate problem. There could be civil flying clubs and gliding clubs—distinct from aeronautical societies—under proper instructors. Students could build their own gliders and, in some cases, light aeroplanes. In clubs associated with an institution providing aeronautical education, they could even design their own aeroplanes and gliders, as in Germany and, to a less extent, in England. Members of the O.T.C. should be taught elementary flying, at their option. This could be done at week-ends in some cases, or in annual camp. Those who fly, civilians included, should be given facilities for periodic practice, say for a few consecutive weeks per annum.

Students should travel by air, where facilities exists, to distant camps and aerodromes.

Students engaging in these activities could be given subsidised reduced rates for air travel on private journeys. Civil staff of the British Air Ministry used to get reduced fares from Civil air lines.

Students flying as passengers or pilots should be adequately covered against flying risks.

They might be given certain preferences in Government appointments, whether aeronautical or other appointments.

Students should not contribute to the costs. These might be estimated as follows:—

Flying training :	Rs. 1,000—1,500.
Camp costs :	Rs. 40 per fortnight.
Travel to camp : 2nd class	Rs. 12 per 100 miles (return).
University Societies : Travel costs of (1½ first class return)	Rs. 36 per 100 miles.
Increments in appointments :	Rs. 603 per annum (50 p.m.)
Air travel reductions :	Rs. 2 to 10 per 100 miles.
Flying clubs :	D. G. C. A. will have accurate figures.

(SDO.) S. C. GHOSH.



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LIST OF PUBLICATIONS OF THE BUREAU OF EDUCATION, INDIA

Serial No.	Names of Publications	Year of publication
1	Report on Vocational Education in India (Delhi, the Punjab and the United Provinces) (E. H. L. 34)	1937
*2	Report of the Women's Education Committee on primary education of girls in India 1936	1937
*3	Report of the Women's Education Committee of Central Advisory Board of Education to consider curriculum of Girls' Primary School in India	1937
*4	Report of the Vernacular Education Committee of the Central Advisory Board of Education appointed to consider certain questions connected with the administration and control of Primary Education	1937
5	Report of the First Committee of Central Advisory Board of Education appointed to consider the Wardha Education Scheme (E. H. L. 40)	1938
6	Report of the 2nd Wardha Education Committee of the Central Advisory Board of Education (App. IV to 5th meeting proceedings)	1940
7	Report of the Adult Education Committee of the Central Advisory Board of Education, 1939 (E. H. L. 46) (App. III to 5th meeting proceedings)	1940
†8	Report of the Social Service and Public Administration Committee of the Central Advisory Board of Education in India, 1940, together with the decisions of the Board thereon (E. C. 6)	1941
9	Report of the Joint Committee appointed by the Central Advisory Board of Health and Central Advisory Board of Education on the Medical Inspection of School Children	1941
10	Report of the Scientific Terminology Committee of the Central Advisory Board of Education in India, 1940, together with the decisions of the Board thereon (E. C. 5)	1941
11	Proceedings of the 6th Meeting of the Central Advisory Board of Education held at Madras on 11th and 12th January 1941 (E. C. 4 VI)	1941
12	Proceedings of the 7th Meeting of the Central Advisory Board of Education in India held at Hyderabad, Deccan, on 14th and 15th January 1942 (E. C. 4 VII)	1942
13	Report of the School Building Committee (E. C. 8)	1942
14	Report of the Uniform Braille Code Committee (E. C. 7)	1942
15	Report of the Examination Committee, 1942 (E. C. 12)	1942
16	Report of the Expert Committee on a Uniform Braille Code for India with the Braille charts printed in Indian Alphabets, 1942, as subsequently modified	1942
17	Proceedings of the 8th Meeting of the Central Advisory Board of Education held at Lucknow (E. C. 4 VIII)	1943
18	Report of the Joint Committee of the Central Advisory Board of Education the relation of the School Leaving Certificate Examination to the Matriculation Examination, 1942 (E. C. 9)	1943
19	Report of the Committee of the Central Advisory Board of Education on the training, recruitment and conditions of service of teachers (E. C. 10)	1943
20	Report of the Committee of the Central Advisory Board of Education appointed to consider the question of the recruitment of the Education Officer, 1942, together with the decisions of the Board thereon (E. C. 11)	1943
21	Report of the Examination Committee	1943
22	Proceedings of the 9th and 10th Meetings of the Central Advisory Board of Education in India held in October 1943 and January 1944 respectively (E. C. 4 IX & X)	1944
23	Report of the Technical Education Committee, 1943 (E. C. 16)	...
24	Report of the Text Book Committee, 1943, (E. C. 15)	1944
25	Report of the Examination Committee (Technique of Examinations), 1943 (E. C. 17)	1944
26	Report of the Committee of Central Advisory Board of Education appointed to consider the question of training, recruitment and condition of service in universities, etc. together with the decisions of the Board thereon (E. C. 22)	1945

* Not published previously, but proposed to be included in future reprints.

† Published by the Central Advisory Board of Health.

Serial No.	Names of Publications	Year of publication
27	Report of the Central Advisory Board of Education on Post-War Educational Development in India, 1944 (E. C. 13)	1945
28	Volume containing reports of the Committees of the Central Advisory Board of Education (E. C. 14)	1945
29	Report of the Administration Committee of the Central Advisory Board of Education	1945
30	Proceedings of the 11th Meeting of the Central Advisory Board of Education (E. C. 4 XI)	1945
31	Report of the Agricultural Education Committee of the Central Advisory Board of Education, 1944 (E. C. 20)	1945
32	Proceedings of the 12th Meeting of the Central Advisory Board of Education held at Mysore in January 1946	1946
33	Report of the Religious Education Committee of the Central Advisory Board of Education	1946
34	Development of Higher Technical Institutions in India (Interim Report of Sarkar's Committee)	1946
35	Report of the Committee of the Central Advisory Board of Education on selection of pupils for Higher Education	1946
36	Report of the Committee of Central Advisory Board of Education on conditions of service of teachers	1946



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